

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

TABLE OF CONTENTS

| | |
|--|----|
| INTRODUCTION | 1 |
| BACKGROUND INFORMATION | 2 |
| DESCRIPTION OF THE FACILITY | 2 |
| History | 2 |
| Collection System Status | 2 |
| Treatment Processes | 2 |
| Discharge Outfall | 3 |
| Residual Solids | 3 |
| PERMIT STATUS | 3 |
| SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT | 4 |
| WASTEWATER CHARACTERIZATION | 4 |
| SEPA COMPLIANCE | 4 |
| PROPOSED PERMIT LIMITATIONS | 4 |
| DESIGN CRITERIA | 5 |
| TECHNOLOGY-BASED EFFLUENT LIMITATIONS | 5 |
| SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS | 6 |
| Numerical Criteria for the Protection of Aquatic Life | 6 |
| Numerical Criteria for the Protection of Human Health | 6 |
| Narrative Criteria | 7 |
| Antidegradation | 7 |
| Critical Conditions | 7 |
| Mixing Zones | 7 |
| Description of the Receiving Water | 7 |
| Surface Water Quality Criteria | 8 |
| Consideration of Surface Water Quality-Based Limits for Numeric Criteria | 8 |
| Whole Effluent Toxicity | 11 |
| Human Health | 11 |
| GROUND WATER QUALITY LIMITATIONS | 12 |
| COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED MAY 1998 | 12 |
| MONITORING REQUIREMENTS | 12 |
| LAB ACCREDITATION | 13 |
| OTHER PERMIT CONDITIONS | 13 |
| REPORTING AND RECORDKEEPING | 13 |
| PREVENTION OF FACILITY OVERLOADING | 13 |
| OPERATION AND MAINTENANCE (O&M) | 13 |
| RESIDUAL SOLIDS HANDLING | 13 |
| PRETREATMENT | 14 |
| FEDERAL AND STATE PRETREATMENT PROGRAM REQUIREMENTS | 14 |
| WASTEWATER PERMIT REQUIRED | 14 |
| REQUIREMENTS FOR ROUTINE IDENTIFICATION AND REPORTING OF INDUSTRIAL USERS | 14 |
| ANNUAL SUBMITTAL OF LIST OF INDUSTRIAL USERS | 15 |
| DUTY TO ENFORCE DISCHARGE PROHIBITIONS | 15 |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

| | |
|--|----|
| SUPPORT BY THE DEPARTMENT FOR DEVELOPING PARTIAL PRETREATMENT PROGRAM BY POTW | 15 |
| OUTFALL EVALUATION | 15 |
| GENERAL CONDITIONS | 15 |
| PERMIT ISSUANCE PROCEDURES | 16 |
| PERMIT MODIFICATIONS | 16 |
| RECOMMENDATION FOR PERMIT ISSUANCE | 16 |
| REFERENCES FOR TEXT AND APPENDICES | 17 |
| APPENDIX A--PUBLIC INVOLVEMENT INFORMATION | 19 |
| APPENDIX B--GLOSSARY | 20 |
| APPENDIX C--TECHNICAL CALCULATIONS | 25 |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

| GENERAL INFORMATION | |
|----------------------------|--|
| Applicant | Thurston County |
| Facility Name and Address | Grand Mound Wastewater Treatment Plant 20248 Grand Mound Way Grand Mound, WA |
| Type of Treatment | Activated sludge oxidation ditch (carousel design), with UV disinfection |
| Discharge Location | Chehalis River @ RM 59.17 Latitude: 46° 47' 16" N Longitude: 123° 01' 53" W. |
| Water Body ID Number | Old Id # WA-23-1010, New Id # 1238225469619 |

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The current system was built and came on-line in 1998. The current permit was issued in 1998 and has run the full five years. Prior to building the new facility the Grand Mound area was served by on-site septic systems. The facility also serves the Department of Social and Health Services (DSHS) Maple Lane Juvenile detention facility and will eventually serve Washington State Department of Transportation (WSDOT) north and south bound rest areas. Prior to being hooked up to the new treatment works, the DSHS Maple Lane facility discharged to an un-lined five-acre lagoon and then to the Chehalis River.

The original source of potable water for most of the residential, commercial, and industrial developments within the Grand Mound area was withdrawal from private wells or small community water systems. These wells all draw water from the same shallow aquifer. Because of the shallow aquifer, contamination from septic tanks, livestock, stormwater and other human activities posed a direct threat to the water supplies. The community is served in part by a water system that draws from two wells. The chlorination system for the water supply system is located in a room on the western end of the workshop for the sewage treatment plant.

The sewage treatment system was designed to meet a projected population that has not yet materialized. Much more growth and industry was expected to locate in the Grand Mound area.

COLLECTION SYSTEM STATUS

The collection system consists of both gravity and vacuum lines. The gravity main lines have a diameter that ranges from 8 to 18-inches; gravity lateral lines have a minimum diameter of 6-inches; vacuum main lines range from 6 to 10-inches; and vacuum laterals are 3-inches in diameter. The collection system crosses Prairie Creek three times. The contract customers (DSHS and WSDOT) are connected to the system via gravity lines.

The system includes two vacuum pump stations. One station is located north at State Route 12 and I-5 and another station is located south at the wastewater treatment plant.

TREATMENT PROCESSES

The wastewater is treated with an oxidation ditch method. The influent enters the facility at the vacuum pump station which is located in the bottom of the lab building. The wastewater is pumped up to the headworks, which consists of a bar-screen, a fine screen auger, and a 24-hour composite sampler with a refrigeration unit.

The wastewater enters the oxidation ditch through a pair of selector tanks that provide anoxic and anaerobic zones. The oxidation ditch flow is powered by a carousel type of horizontal rotor. A relatively long detention time is provided.

Flow from the ditch enters one of two 34-foot diameter secondary clarifiers. Only one clarifier is used at a time while the other, which serves as a back-up, sits idle for months at a time.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

The disinfection system consists of two sets of ultra-violet (UV) lights that are operated one set of lights at a time. Each set of lights has four banks of lights with six tubes in each bank. At the time of the June 2003 inspection, one whole set (half of the UV system) had the electrical wiring burned out. Another 24-hour sample point with a refrigeration unit is located at the effluent end of the UV channel.

The sludge from the clarifier is sent to an aerobic digester. The sludge can also be sent through a dewatering and polymer injection system for more thickening. Sludge is thickened to 4-5 percent solids and generally sent to Biorecycling in Lewis County for land application.

There are no industrial users discharging to the Grand Mound system. There are a few commercial businesses that include: four restaurants and a small airplane kit manufacturing shop that works with fiberglass and polymers.

The plant is classified as a Class II facility which requires an operator in responsible charge to have a Group II certification at minimum. The operators this facility are part of Thurston County's system of three plants which includes: Boston Harbor, Tamoshan, and Grand Mound. Operators are cross trained at each facility and rotate out to each plant for several months at a time. At the time of the June 2003 inspection there were two operators: Richard Minshall has a Group I certification and John Eaton has a Group II certification. Other operators listed as being operators on rotation for the facility are Vern Prell who has a Group II certification and William Champion who has a Group III certification.

The facility is operated from 8:00 a.m. to 3:30 p.m., Monday through Friday. Staff is on-call on the weekend.

There are currently no outstanding loans or grants for the facility.

DISCHARGE OUTFALL

The treatment works discharges secondary treated and disinfected effluent to the Chehalis River at River Mile 59.17 via an 18-inch HDPE pipe. There is no diffuser on the outfall. The terminus of the outfall is approximately 15 feet from the shore at a depth of 2-3 feet of water during the low flow observed in September 1999.

RESIDUAL SOLIDS

The treatment facility removes solids during the treatment of the wastewater at the headworks (grit and screenings), and at the secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the local solid waste transfer station. Solids removed from the secondary clarifier are treated in an aerobic digester where liquid polymer is added to thicken the sludge to approximately 4-5 percent solids. The sludge is then trucked offsite and typically is taken by Biorecycling Company located in Lewis County where it is land applied under a permit from the Department.

PERMIT STATUS

The previous permit for this facility was issued on May 20, 1998. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, and Fecal Coliform bacteria.

An application for permit renewal was submitted to the Department on December 17, 2002, and accepted by the Department on February 27, 2003.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on June 24, 2003. The facility appeared to be producing high quality effluent. Some problems were noted with the UV disinfection redundancy, storage of chemicals, and laboratory paperwork.

During the history of the previous permit, the Permittee has remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. Only one violation was noted which stemmed from failure to sample ammonia on one occasion.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization for Feb 1999 through May 2003

| <u>Parameter</u> | <u>Concentration</u> |
|--------------------------|----------------------|
| Flow mgd avg monthly | 0.054 mgd |
| BOD lbs/day avg monthly | 1.0 |
| BOD mg/L avg monthly | 3.0 |
| TSS lbs/day avg monthly | 1.0 |
| TSS mg/L avg monthly | 2.8 |
| pH min/max | 6.2/9.0 |
| Fecal coliform monthly | 3.6 avg, 30 max |
| geometric mean org/100ml | |
| Ammonia-N mg/L max | 12 |

The DMR characterization shown above shows the effluent BOD and TSS are of low concentrations. Fecal coliform is kept low by the UV disinfection system. The maximum pH reached the upper limit but did not go over it. In general, the effluent appears to be of good quality.

A study was conducted for the outfall and mixing (Cosmopolitan, 1999) which found little impact from ammonia or metals. The Department sampled ammonia and several metals in the ambient environment in a separate study, however, no metals have been sampled in the effluent. More will be discussed under toxics below.

SEPA COMPLIANCE

There is no new construction or actions at this time that would require State Environmental Policy Act (SEPA).

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the December 1996 Thurston County Wastewater Engineering Report and Facility Plan prepared by Earth Tech and are as follows:

Table 2: Design Standards for Grand Mound WWTP Phase I.

| <u>Parameter</u> | <u>Design Quantity</u> |
|-----------------------------------|------------------------|
| Monthly average flow (max. month) | 0.380 mgd |
| Average flow (max. day) | 0.738 mgd |
| Peak hourly flow | 0.949 mgd |
| BOD ₅ influent loading | 890 lbs/day |
| TSS influent loading | 770 lbs/day |

When the facility was designed and permitted five years ago, county planners and consultant thought the Grand Mound area would grow at a much higher rate than it has. There were plans for two phases of improvements that would add two more oxidation ditches and other expansions to the clarifier and UV disinfection. Because the growth has been slow, the facility will not need to expand during the life of this permit. Therefore, the only limits included in this permit are for the facility now as it stands.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD₅, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

| <u>Parameter</u> | <u>Limit</u> |
|------------------|---|
| pH: | Shall be within the range of 6 to 9 standard units. |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

| <u>Parameter</u> | <u>Limit</u> |
|-------------------------------------|--|
| Fecal Coliform Bacteria | Monthly Geometric Mean = 200 organisms/100 ml Weekly Geometric Mean = 400 organisms/100 ml |
| BOD ₅ (concentration) | Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L |
| TSS (concentration) | Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L |

The following technology-based mass limits for BOD and TSS are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

BOD and TSS Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (0.38 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 95 lbs/day.

The BOD and TSS weekly average effluent mass loading is calculated as 1.5 x monthly loading = 142.5 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Chehalis River which is designated as a Class A receiving water in the vicinity of the outfall. Other point source outfalls are several miles upstream at Chehalis and Centralia or several miles downstream at Elma. Significant nearby non-point sources of pollutants include livestock operations throughout the Chehalis Basin which include cattle and dairy operations. Characteristic uses include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

| | |
|------------------|---|
| Fecal Coliform | 100 organisms/100 ml maximum geometric mean |
| Dissolved Oxygen | 8 mg/L minimum |
| Temperature | 18 degrees Celsius maximum or incremental increases above background |
| pH | 6.5 to 8.5 standard units |
| Turbidity | less than 5 NTUs above background |
| Toxics | No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge) |

An outfall mixing study was conducted (Cosmopolitan, 1999) that included an analysis of ambient water quality and reasonable potential to violate water quality standards. A total maximum daily loading study (TMDL) study was conducted for a stretch of stream in Chehalis and Centralia. Another TMDL was conducted well downstream of the discharge from the Town of Porter to the mouth of the river. Another study was conducted on Whole Effluent Toxicity (WET) in a Bioassay Report (AMEC, 2000).

The TMDL study in the upper Chehalis was conducted to assess loading of fecal coliform and nutrients that caused low dissolved oxygen (DO). The low DO problem appeared to be isolated in a reach of river near Chehalis. There are other listings and TMDL work on the lower Chehalis for fecal coliform and temperature. The source of fecal coliform as determined by the TMDL is mainly from non-point sources.

The WET test bioassay report did not reveal any problems with the effluent. More is discussed below under Whole Effluent Toxicity.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

The maximum length of the mixing zone is 304 feet downstream and no greater than 100 feet upstream. The width of the mixing zone is restricted to 25 percent of the river width, which is 42 feet.

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of RIVPLUM5. The dilution factors have been determined to be (from Appendix C):

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

| | <u>Acute</u> | <u>Chronic</u> |
|--------------|--------------|----------------|
| Aquatic Life | 4:1 | 22:1 |

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Chehalis River is the seven day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the Grand Mound outfall was taken from recent monitoring data and from the TMDL study where recent data was not available. Metals data was from a 1997 Ecology study. The ambient background data used for this permit includes the following from Department data as displayed in Cosmopolitan, 1999.

| <u>Parameter</u> | <u>Value used</u> |
|------------------------|------------------------------|
| 7Q10 low flow | 119.3 cfs |
| Velocity | .164 ft/sec |
| Depth | 4.29 feet |
| Width | 169.6 feet |
| Roughness (Manning) | n=0.035 |
| Temperature (summer) | 22.3° C |
| pH (high) | 7.45 |
| Dissolved Oxygen (low) | 7.9 mg/L |
| Total Ammonia-N | 0.056 mg/L |
| Fecal Coliform | 63 org./100ml |
| Conductivity | 67.5 |
| Turbidity | 27 NTU |
| Hardness | 24 mg/L as CaCO ₃ |
| Lead | 0.91 µg/L |
| Copper | 1.8 µg/L |
| Zinc | 3.3 µg/L |
| Cadmium | 0.054 µg/L |
| Nickel | 0.901 µg/L |
| Mercury | 0.002 µg/L |
| All Other Metals | 0.0 (below detection limits) |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

BOD₅--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD₅ was placed in the permit. The TMDL modeled results (TMDL 2000 study update – Tables 5.1 and 5.2) for BOD₅ and set loading limits in the Chehalis River at Grand Mound at 298.8 lbs/day. The TMDL also set limits for ammonia-N at 161.54 lbs/day. The BOD₅ loading under the current phase of operation will be limited to 95 lbs/day based on the plant's existing capacity as stated earlier. Further expansion of the Grand Mound facility will not likely occur in this or the next permit cycle. Using EPA's limit calculations spreadsheet, the ammonia's discharge is limited to 43.4 mg/L as a maximum daily limit or 21.6 mg/L as an average monthly limit. The ammonia has not exceeded 1 mg/L in the last three years of operation and is likely the ammonia toxicity would be a limiting factor before ammonia ever reached these limits. Just prior to 2000, the facility appeared to have some high ammonia. However, these values may have been in error and it appears that the facility is now able to control ammonia discharges. No ammonia limits will be placed in the permit, but, sampling will need to continue in the next permit.

Temperature and pH--The impact of pH and temperature were modeled using the calculations from EPA, 1988. The input variables were: dilution factor 22:1; upstream temperature 22.3°C; upstream pH 7.6; upstream alkalinity 50 (as mg CaCO₃/L); effluent temperature 21°C; effluent pH of 9; and, effluent alkalinity 150 (as mg CaCO₃/L).

The temperature TMDL for the Upper Chehalis found that solar radiation and the lack of riparian shade was the predominant cause of temperature increases in the river. Some point sources were given waste load allocations for temperature; however, Grand Mound did not receive a waste load allocation. Although the river and the effluent are above the water quality standards, the effluent temperature is lower than the ambient temperature. The ambient temperature is based on a small data samples, however, this temperature matches fairly well with the TMDL temperature data at nearby stations which had a larger sample to work with. The effluent temperature is based on a very large sample of daily temperature readings for three years.

The Department policy under the TMDL for the critical summer period, where the background temperature is higher than the water quality criterion, is to not allow an increase at the mixing zone boundary of more than 0.3°C. In the case of Grand Mound, the effluent temperature is lower than the background and therefore the criterion under the policy is never exceeded. However, to go one step further, considering the ambient temperature to be the criterion and using simple mixing, the following result emerges:

$$T_{\text{receiving}} = (T_{\text{ambient}}(DF-1) + T_{\text{effluent}})/DF = (18.00(21) + 21.00)/22 = 18.14^{\circ}\text{C}$$

The increase at the edge of the mixing zone is 0.14°C which is much less than 0.30°C. Therefore, under critical conditions there is no predicted violation of temperature of the Water Quality Standards for Surface Waters.

The criterion for pH was also not exceeded and the technology-based effluent limitations for pH was placed in the permit and temperature was not limited. Temperature sampling of effluent should continue and will be a requirement in the next permit.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 22:1. The ambient fecal coliform was 63 org/100 ml which is well below the water quality standard of 100 org/100ml for Class A water. This value was a 90th percentile based on data from 1997, 2002, and 2003. The UV disinfection system has done a very good job at keeping the fecal coliform low. The 95th percentile of weekly geometric mean fecal coliform is 93 org/100 ml and a maximum never exceeded 400 org/100 ml. Final values at the edge of the mixing zone would be much less.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were evaluated: ammonia, lead, copper, zinc, cadmium, nickel, and mercury. The metals were sampled in ambient environment (some were detected at very low amounts). The metals were never tested in the effluent. In order to conduct a reasonable potential analysis, average metals values from another sewage treatment plant were used as surrogate values. In this case the metals values were taken from Tacoma's North End facility which does not have any industry discharging to it—the customers discharging to the system are all residential in nature which is similar to Grand Mound. A reasonable potential analysis (See Appendix C) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

The determination of the reasonable potential for the toxic chemicals listed above to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (Appendix C) at the critical condition. The critical condition in this case occurs during the summer months of May through October.

Calculations using all applicable data resulted in a determination that there is no reasonable potential for this discharge to cause a violation of water quality standards. This determination assumes that the Permittee meets the other effluent limits of this permit.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC.

A WET test was conducted by AMEC Earth and Environmental (AMEC, 2000) which did not show toxicity with 100 percent effluent. There was no statistically significant difference between the control and any effluent concentration in either the Fathead minnow or Ceriodaphnia chronic tests or to acute toxicity tests using fathead minnow and *Daphnia Pulex*. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED MAY 1998

| | Existing Limits ^a | | Proposed Limits ^a | |
|---|---|----------------------------|---|----------------------------|
| Parameter | Average Monthly | Average Weekly | Average Monthly | Average Weekly |
| BOD ₅ ^b | 30 mg/L, 95 lbs/day, 85 % removal | 45 mg/L, 142.5 lbs/day, | 30 mg/L, 95 lbs/day, 85 % removal | 45 mg/L, 142.5 lbs/day, |
| TSS ^b | 30 mg/L, 95 lbs/day, 85 % removal | 45 mg/L, 142.5 lbs/day, | 30 mg/L, 95 lbs/day, 85 % removal | 45 mg/L, 142.5 lbs/day, |
| Fecal coliform | 200/100 ml | 400/100 ml | 200/100 ml | 400/100 ml |
| pH | Daily minimum is equal to or greater than 6 and the maximum is less than or equal to 9. | | Daily minimum is equal to or greater than 6 and the maximum is less than or equal to 9. | |
| ^a The average monthly and weekly effluent limitations are based on the arithmetic mean of the samples taken with the exception of fecal coliform, which is based on the geometric mean. | | | | |
| ^b The average monthly effluent concentration for BOD ₅ and TSS shall not exceed 30 mg/L or 15 percent of the respective monthly average influent concentrations, whichever is more stringent. | | | | |

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for ammonia and temperature will need to continue. Monitoring for these items is needed to further characterize the effluent. These pollutants could have a significant impact on the quality of the surface water.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual* (July 1994) for an oxidation ditch.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for general chemistry and micro biology which includes: BOD/COD, total residual chlorine, dissolved oxygen, pH, total suspended solids, and fecal coliform. Ammonia must be sent to another laboratory. The current accreditation expires in November 21, 2003.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by the Department under Chapter 70.95J RCW and Chapter 173-308 WAC. The WWTP as a biosolids generator, is required to obtain coverage under the General Statewide Permit for Biosolids Management. The disposal of other solid waste (grit, screenings, etc.) is under the jurisdiction of the Thurston County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will be used by the Department to develop or update local limits and is also required under 40 CFR 503.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT
PRETREATMENT

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the “Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10” (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]. Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)]. (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.) Industrial dischargers need to apply for a State Waste Discharge Permit 60 days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities [40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.].

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to “take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system.” Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Annual Submittal of List of Industrial Users

This provision requires the POTW to submit annually a list of existing and proposed SIUs and PSIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTWs service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section, to take adequate continuous routine measures to identify existing and new industrial discharges.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass-through or interference. The definitions of pass-through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

OUTFALL EVALUATION

Proposed permit Condition S.7 requires the Permittee to conduct an outfall inspection once per year and after any major storms and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

REFERENCES FOR TEXT AND APPENDICES

AMEC Earth and Environmental

2000. Bioassay Report. Northwest Bioassay Laboratory, Fife, Washington. December, 2000 Prepared for Thurston Co.

Cosmopolitan, Engineering Group

1999, December. Grand Mound Outfall Mixing Study Prepared for Thurston Co. Report # THU001

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Washington State Department of Ecology.

2001. Upper Chehalis River Basin Temperature Total Maximum Daily Load. Publication Number 99-52.

2000. Revised Upper Chehalis River Basin Dissolved Oxygen Total Maximum Daily Load Submittal Report.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 14, 2002, and July 21, 2002, in the *Daily Olympian* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on October 30, 2003, in the *Daily Olympian* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Administrator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6554, or by writing to the address listed above.

This permit and fact sheet were written by Eric Schlorff.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD₅ -- The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD₅ is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued there under (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the--State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov/programs/wq/wastewater/index.html>

Spread of a plume from a point source in a river with boundary effects from the shoreline based on the method of Fischer *et al.* (1979) with correction for the effective origin of effluent.

Revised 22-Feb-96

| INPUT | | |
|--|--------|--------|
| 1. Effluent Discharge Rate (cfs): | 0.59 | 1.14 |
| 2. Receiving Water Characteristics Downstream From Waste Input | | |
| Stream Depth (ft): | 4.29 | 4.29 |
| Stream Velocity (fps): | 0.16 | 0.16 |
| Channel Width (ft): | 169.60 | 169.60 |
| Stream Slope (ft/ft) or Manning roughness "n": | 0.035 | 0.035 |
| 0 if slope or 1 if Manning "n" in previous cell: | 1 | 1 |
| 3. Discharge Distance From Nearest Shoreline (ft): | 7 | 7 |
| 4. Location of Point of Interest to Estimate Dilution | | |
| Distance Downstream to Point of Interest (ft): | 304 | 30.4 |
| Distance From Nearest Shoreline (ft): | 0 | 7 |
| 5. Transverse Mixing Coefficient Constant (usually 0.6): | 0.6 | 0.6 |
| 6. Original Fischer Method (enter 0) or <i>Effective Origin</i> Modification (enter 1) | 0 | 0 |
| OUTPUT | | |
| 1. Source Conservative Mass Input Rate | | |
| Concentration of Conservative Substance (%): | 100.00 | 100.00 |
| Source Conservative Mass Input Rate (cfs*%): | 58.79 | 114.00 |
| 2. Shear Velocity | | |
| Shear Velocity based on slope (ft/sec): | #N/A | #N/A |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

| | | |
|---|---------------|-------------|
| Shear Velocity based on Manning "n": | | |
| using Prasnun equations 8-26 and 8-54 assuming | | |
| hydraulic radius equals depth for wide channel | | |
| Darcy-Weisbach friction factor "f": | 0.087 | 0.087 |
| Shear Velocity from Darcy-Weisbach "f" (ft/sec): | 0.017 | 0.017 |
| Selected Shear Velocity for next step (ft/sec): | 0.017 | 0.017 |
| 3. Transverse Mixing Coefficient (ft ² /sec): | 0.044 | 0.044 |
| 4. Plume Characteristics Accounting for Shoreline Effect (Fischer <i>et al.</i> , 1979) | | |
| Co | 4.93E-01 | 9.55E-01 |
| x' | 2.84E-03 | 2.84E-04 |
| y'o | 4.13E-02 | 4.13E-02 |
| y' at point of interest | 0.00E+00 | 4.13E-02 |
| Solution using superposition equation (Fischer eqn 5.9) | | |
| Term for n= -2 | 0.00E+00 | 0.00E+00 |
| | 3.68E- | |
| Term for n= -1 | 147 | 0.00E+00 |
| Term for n= 0 | 1.72E+00 | 1.00E+00 |
| | 3.68E- | |
| Term for n= 1 | 147 | 0.00E+00 |
| Term for n= 2 | 0.00E+00 | 0.00E+00 |
| Upstream Distance from Outfall to <i>Effective Origin</i> of Effluent Source (ft) | #N/A | #N/A |
| Effective Distance Downstream from Effluent to Point of Interest (ft) | 304.00 | 30.40 |
| x' Adjusted for <i>Effective Origin</i> | 2.84E-03 | 2.84E-04 |
| C/Co (dimensionless) | 9.11E+00 | 1.68E+01 |
| Concentration at Point of Interest (Fischer Eqn 5.9) | 4.49E+00 | 1.60E+01 |
| Unbounded Plume Width at Point of Interest (ft) | 51.170 | 16.181 |
| Unbounded Plume half-width (ft) | 25.585 | 8.091 |
| Distance from near shore to discharge point (ft) | 7.00 | 7.00 |
| Distance from far shore to discharge point (ft) | 162.60 | 162.60 |
| Plume width bounded by shoreline (ft) | 32.59 | 15.09 |
| Approximate Downstream Distance to Complete Mix (ft): | 39,291 | 39,291 |
| Theoretical Dilution Factor at Complete Mix: | 202.966 | 104.670 |
| Calculated Flux-Average Dilution Factor Across Entire Plume Width: | 38.996 | 9.313 |
| Calculated Dilution Factor at Point of Interest: | 22.286 | 6.242 |
| Maximum allowable dilution factor based on volume | 51.97 | 3.62 |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

INPUT

| | |
|---|------|
| 1. Ambient Temperature (deg C; 0<T<30) | 22.3 |
| 2. Ambient pH (6.5<pH<9.0) | 7.60 |
| 3. Acute TCAP (Salmonids present- 20; absent- 25) | 20 |
| 4. Chronic TCAP (Salmonids present- 15; absent- 20) | 15 |

OUTPUT

| | |
|---|---------|
| 1. Intermediate Calculations: | |
| Acute FT | 1.00 |
| Chronic FT | 1.41 |
| FPH | 1.30 |
| RATIO | 16 |
| pKa | 9.33 |
| Fraction Of Total Ammonia Present As Un-ionized | 1.8343% |
| 2. Un-ionized Ammonia Criteria | |
| Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L) | 199.3 |
| Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L) | 27.8 |
| 3. Total Ammonia Criteria: | |
| Acute Total Ammonia Criterion (mg NH3+ NH4/L) | 10.9 |
| Chronic Total Ammonia Criterion (mg NH3+ NH4/L) | 1.5 |
| 4. Total Ammonia Criteria expressed as Nitrogen: | |
| Acute Ammonia Criterion as mg N | 8.9 |
| Chronic Ammonia Criterion as N | 1.24 |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

REASONABLE POTENTIAL DETERMINATION

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

| Parameter | State Water Quality Standard | | | | | Max concentration at edge of... | | LIMIT REQ'D? |
|-----------|--------------------------------------|--------------------------------------|---|-----------|-----------|---------------------------------|---------------------|--------------|
| | Metal Criteria Translator as decimal | Metal Criteria Translator as decimal | Ambient Concentration (metals as dissolved) | Acute | Chronic | Acute Mixing Zone | Chronic Mixing Zone | |
| | Acute | Chronic | ug/L | | | | | |
| Ammonia | 1.00 | 1.00 | 685.0000 | 10,900 | 1500.0000 | 5,475 | 1,459 | NO |
| Cadmium | 0.94 | 0.94 | 0.0540 | 3.70 | 1.03 | 0.05 | 0.05 | NO |
| Copper | 1.00 | 1.00 | 1.8000 | 17.0163 | 11.3509 | 5.60 | 2.49 | NO |
| Lead | 0.47 | 0.47 | 0.0910 | 64.5814 | 2.5166 | 0.27 | 0.12 | NO |
| Mercury | 0.85 | 1.00 | 0.0020 | 2.1000 | 0.012 | 0.01 | 0.004 | NO |
| Nickel | 1.00 | 1.00 | 0.9010 | 1415.4064 | 157.1922 | 1.53 | 1.01 | NO |
| Zinc | 1.00 | 1.00 | 3.3000 | 114.4474 | 104.5078 | 17.09 | 5.81 | NO |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

MORE INPUTS FOR RESONABLE POTENTIAL DETERMINATION

| | Effluent percentile value | <i>P_n</i> | Max effluent conc. measured (metals as total recoverable) <i>ug/L</i> | Coeff Variation <i>CV</i> | <i>s</i> | # of samples <i>n</i> | Multiplier | Acute Dil'n Factor | Chronic Dil'n Factor |
|---------|---------------------------------|----------------------|---|---------------------------------|----------|-----------------------------|------------|--------------------------|----------------------------|
| | | | | | | | | | |
| Ammonia | 0.95 | 0.964 | 12,000 | 0.60 | 0.55 | 15 | 0.92 | 4 | 22 |
| Cadmium | 0.95 | 0.861 | 0.04 | 0.60 | 0.55 | 20 | 1.36 | 4 | 22 |
| Copper | 0.95 | 0.861 | 12.50 | 0.60 | 0.55 | 20 | 1.36 | 4 | 22 |
| Lead | 0.95 | 0.861 | 1.30 | 0.60 | 0.55 | 20 | 1.36 | 4 | 22 |
| Mercury | 0.95 | 0.861 | 0.03 | 0.60 | 0.55 | 20 | 1.36 | 4 | 22 |
| Nickel | 0.95 | 0.861 | 2.50 | 0.60 | 0.55 | 20 | 1.36 | 4 | 22 |
| Zinc | 0.95 | 0.861 | 43.00 | 0.60 | 0.55 | 20 | 1.36 | 4 | 22 |

Metals effluent values were not available from Grand Mound. Therefore, the average effluent values from the Tacoma North End facility were used as surrogate values. The Tacoma North End facility has no industrial customers and receives only domestic waste water.

Based on Lotus File PHMIX2.WK1 Revised 19-Oct-93

INPUT

| | |
|--|--------|
| 1. DILUTION FACTOR AT MIXING ZONE BOUNDARY | 22.000 |
| 1. UPSTREAM/BACKGROUND CHARACTERISTICS | |
| Temperature (deg C): | 22.30 |
| pH: | 7.60 |
| Alkalinity (mg CaCO ₃ /L): | 50.00 |
| 2. EFFLUENT CHARACTERISTICS | |
| Temperature (deg C): | 21.00 |
| pH: | 9.00 |
| Alkalinity (mg CaCO ₃ /L): | 150.00 |

OUTPUT

| | |
|--------------------------|------|
| 1. IONIZATION CONSTANTS | |
| Upstream/Background pKa: | 6.37 |
| Effluent pKa: | 6.38 |

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

2. IONIZATION FRACTIONS

| | |
|--|------|
| Upstream/Background Ionization Fraction: | 0.94 |
| Effluent Ionization Fraction: | 1.00 |

3. TOTAL INORGANIC CARBON

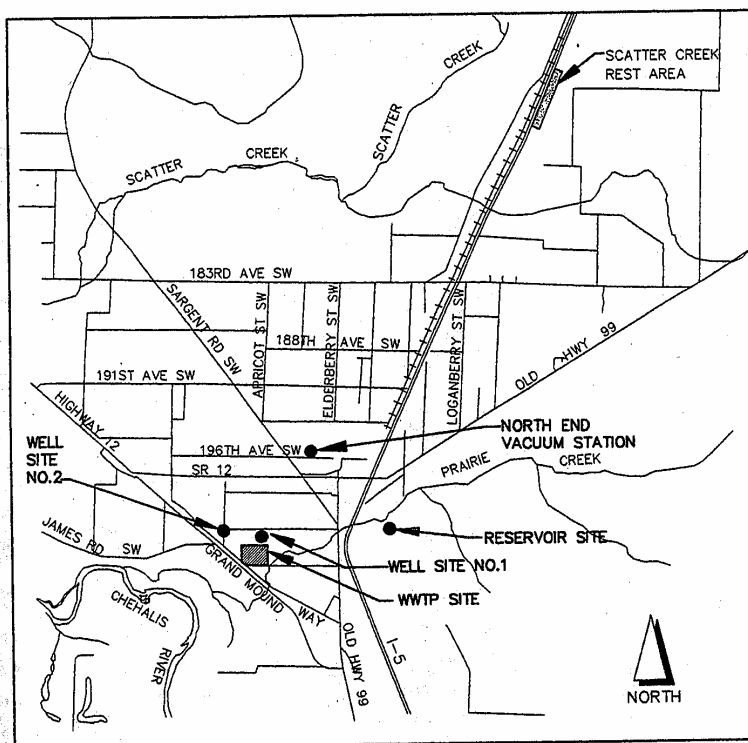
| | |
|---|--------|
| Upstream/Background Total Inorganic Carbon (mg CaCO ₃ /L): | 52.92 |
| Effluent Total Inorganic Carbon (mg CaCO ₃ /L): | 150.36 |

4. CONDITIONS AT MIXING ZONE BOUNDARY

| | |
|---|-------|
| Temperature (deg C): | 22.24 |
| Alkalinity (mg CaCO ₃ /L): | 54.55 |
| Total Inorganic Carbon (mg CaCO ₃ /L): | 57.35 |
| pKa: | 6.37 |

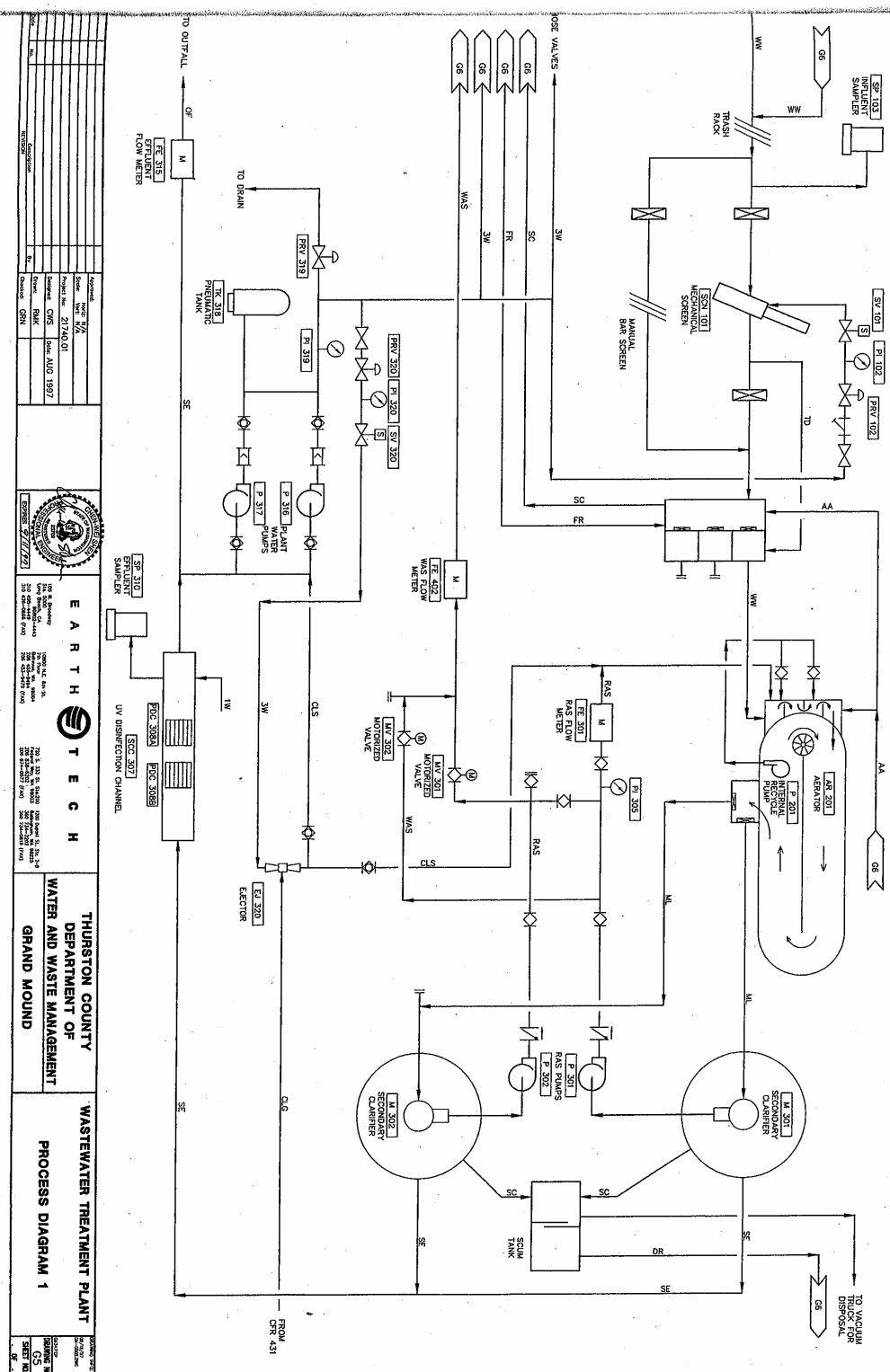
| | |
|-----------------------------|------|
| pH at Mixing Zone Boundary: | 7.66 |
|-----------------------------|------|

FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT

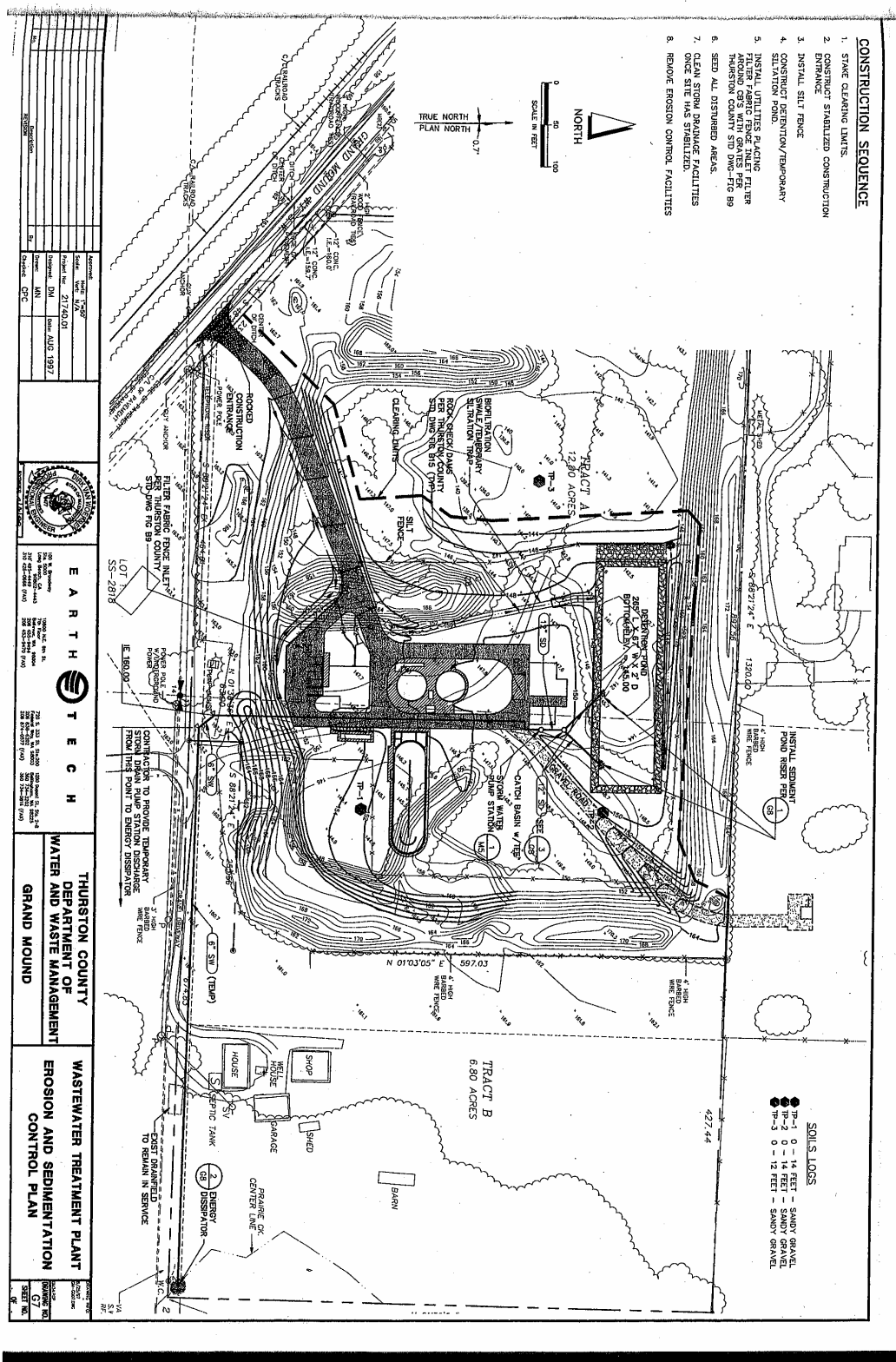


VICINITY MAP

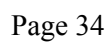
FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT



FACT SHEET FOR NPDES PERMIT WA0042099
GRAND MOUND WASTEWATER TREATMENT PLANT



Page 34



APPENDIX D--RESPONSE TO COMMENTS

Letter received November 14, 2003, from Thurston County, Department of Water and Waste Management (the Permittee of the Grand Mound WWTP). The following is a summary of their comments:

Comment:

As you are aware, the Grand Mound Wastewater Facility has been in operation approximately four and a half years. During this time, the County had hoped for considerable development within the utility, but that has not occurred to date. The positive effect of no growth is a very stable operation with high quality effluent. Grand Mound is zoned for commercial and industrial, however, we only have one small-scale industrial fiberglass airplane manufacturing facility. The remaining customer base is made up of several restaurants, business offices, and residential users. These customers typically discharge ten to fifteen thousand (10,000-15,000) gallons a day. The Maple Lane Juvenile Detention discharge about thirty five thousand (35,000) gallons a day. The Grand Mound facility is running at about 13 percent of capacity, which helps produce a very high quality effluent. As noted in the permit fact sheet, the BOD and TSS average monthly discharge for four and a half years is 3 mg/L or 1 pound per month.

The negative affect of no growth has put the utility in a very poor financial position. Our concern is the new Draft NPDES permit imposes additional financial hardship to the utility without any benefit to protecting the environment.

Given the three factors noted above, we are requesting the new permit be amended to require five daily effluent samples per week, excluding holidays, for pH, temperature, and UV. The current and new draft permit would require daily sampling. The Grand Mound Facility is normally not manned on the weekends or holidays and to do so is very costly in overtime. Data collection on a weekend for pH, temperature, and UV intensity does not guarantee the quality of the effluent, and is not cost effective to collect, given the very consistence track record in Grand Mound.

The new proposed NPDES permit requires two samples per week for influent and effluent BOD and TSS mg/L and Lbs. The old permit required one per week; we are requesting the new permit be amended to reflect one influent and effluent BOD and TSS per week. Again, we contend this imposes additional financial hardship on the utility with no environmental benefit.

Response:

The permit includes the minimum monitoring required for a facility of this size and type as detailed in the Department's *Permit Writers Manual*. Although the facility is operating well within its design capacity and BOD has been well within the acceptable range, the Department believes the prescribed monitoring schedule is necessary to ensure proper operation and assessment of the facility. The monitoring schedule will remain in-place.